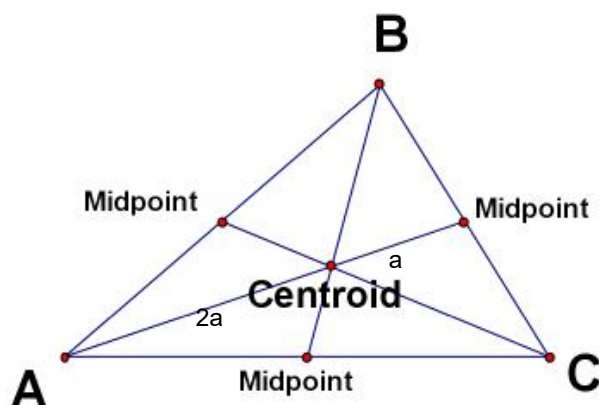


L7(2.6) Triangle Centres

1. **centroid - centre of mass**
 2. **circumcentre - equidistant**
 3. **orthocentre**
- } Application Problems

CENTROID

The **centroid** is also known as the **centre of mass** of the triangle. You could balance the triangle at this point. All three **medians** meet at the centroid.

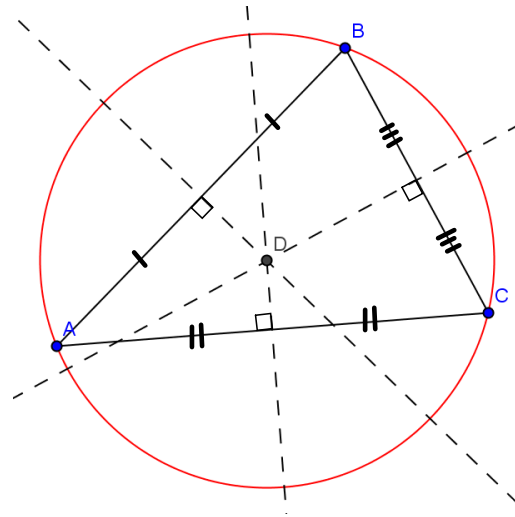


$C =$

CIRCUMCENTRE

The point where the **perpendicular bisectors** of a triangle meet is called the **Circumcentre**.

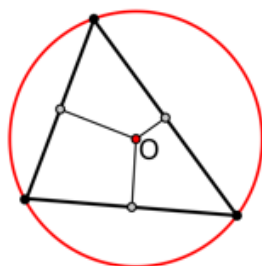
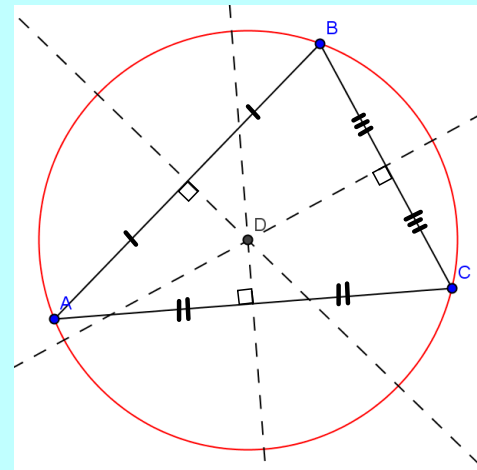
The **circumcentre** is the point that is **equidistant** from all 3 vertices of the triangle.



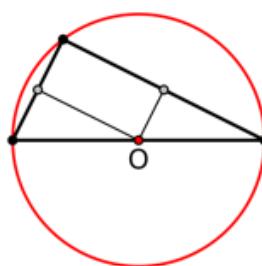
<http://www.mathopenref.com/trianglecircumcenter.html>

CIRCUMCENTRE

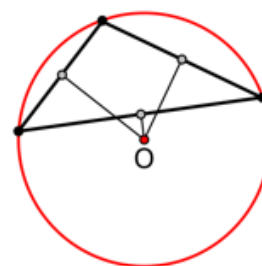
It lies inside for an **acute**,
outside for an **obtuse** and
at the center of the
hypotenuse for the right
triangle



*the circumcenter of
an acute triangle
is inside the triangle*



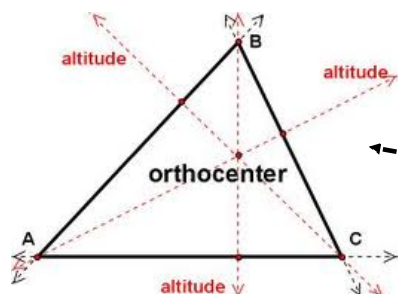
*the circumcenter of
a right triangle
is on the hypotenuse*



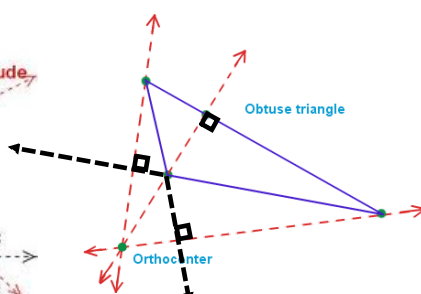
*the circumcenter of
an obtuse triangle
is outside the triangle*

ORTHOCENTRE

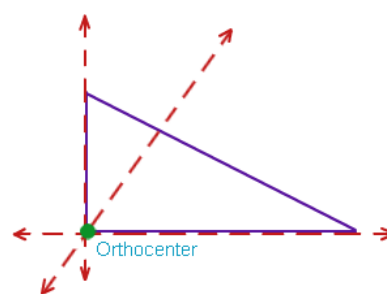
Orthocenter is an intersection point of 3 altitudes of a triangle.



Orthocentre of an acute triangle



Orthocentre of an obtuse triangle



Orthocentre of a right triangle

<http://www.mathopenref.com/triangleorthocenter.html>

Given triangle FGH with vertices at $F(-2,7)$, $G(10,1)$, and $H(1,10)$:

- List the steps required to determine the coordinates of the circumcentre, and then find it (draw a sketch first!)
- List the steps required to determine the coordinates of the centroid. (draw a sketch... maybe a new one)
- List the steps required to determine the coordinates of the orthocentre.

ANS: Circumcentre (4,4) Centroid (3,6) Orthocentre (1,10)

Assigned Work:

p.120-121 # 9, 10

Triangle ABC has vertices A(3, 4), B(-5, 2) and C(1, -4).

Find the coordinates of the

- a) circumcentre (**equidistant**). Answer: $(-2/5, 3/5)$
- b) orthocentre. Answer: $(-1/5, 4/5)$
- c) centroid (**centre of mass**). Answer: $(-1/3, 2/3)$